2. Cell Site Hardware

Based on discussions with the TDOA/AOA vendors, Cingular would have to install an LMU in every cell site[1] to achieve reasonable accuracy. It is true that most base station shelters deployed in cellular 850 MHz markets are of sufficient size to accommodate the installation of an LMU. However, this is not true for the more recently deployed PCS 1900 MHz markets. The shelters in these systems were designed to occupy a minimal amount of space and to support only the base station hardware and the associated HVAC and AC power. At many sites, there is not adequate space, power, or heating and cooling available to support the addition of location hardware. These sites would require significant modifications in the form of additional cabinets. These types of improvements generally require zoning approval.

These are the deployment issues never discussed by the location vendors, but they are realities faced by carriers. Although some of these issues can be worked in parallel, cell site redesign, antenna supporting structure redesign, zoning approval, issuance of a building permit and eventual construction need to be worked sequentially. Thus, a delay in one step in the critical path (e.g., zoning) will result in a delay in the entire implementation.

B. RF Mapping Technologies

1. Base Station Requirements

Based on trials and reports related to this type of technology, several important issues cause concern to Cingular. All trials of this technology were conducted

in controlled environments. The RF Mapping test beds can be characterized as not representative of the typical deployment this proposed solution will require to support a wireless system.

In all of the trials with which Cingular is familiar, the average number of LMUs per square mile was five times greater than the average number of cell sites per square mile deployed in Cingular markets. Even that LMU density level did not produce a degree of accuracy that met the FCC's rule.

The technology providers have not addressed what accuracy would be attainable if they deployed their solution at reduced LMU densities so that the number of LMU sites did not exceed the number of cell sites. In a typical suburban/urban service area of 300 cell sites, a deployment at the tested LMU density would require 1500 LMUs to achieve the accuracy claimed in the trial reports. At this LMU density, it is difficult to comprehend how a carrier using RF Mapping as its technology solution can deploy LMUs at a sufficient number of locations necessary to achieve even the inadequate accuracy levels produced by the trials. For a carrier to have to acquire and build sites specifically for LMUs (in addition to its cell sites) translates into real estate lease negotiations and approvals, zoning applications approvals, building permits and backhaul facilities. All of these requirements will result in additional time to deploy the solution.

---

[1] Adding an LMU at every cell site denotes an LMU density of 1:1. This LMU density can be thought of as a practical deployment limit, but this density level has not been demonstrated as capable of achieving the FCC's accuracy standard. If the accuracy standard were to be strictly enforced by the FCC, an LMU density of much greater than 1:1 would be required, making these technologies practically infeasible.

The physical constraints of deploying LMUs for RF Mapping are similar to those described for TDOA/AOA technology deployments. See Section I.A.1., above.

2. Drive Data Collection Requirements

As highlighted in the trials conducted by Cingular, and reports from other sources, this technology requires data to be gathered by means of drive testing so that a calibration database can be built for each market. As mentioned above, trials of this technology were conducted in a very controlled environment. In all cases, extensive drive data was collected in the test areas.

C. Switch-based Solutions, like MNLS

Cingular has been investigating a switch-based technology for 18 months and has found the technology to be promising. Although it is a relative newcomer among the proposed E911 Phase II solutions, significant improvements in accuracy have been achieved during this period.

From a deployment perspective, this technology can be rolled out in a shorter time period than other technologies and it can cover all TDMA mobiles with no impact to a TDMA RF network. This technology does not require hardware at the cell site or additional antennas on towers. This technology does necessitate drive testing and data collection (as do the RF Mapping solutions). However, no specialized data collection equipment would be needed. The drive test equipment is currently available in most Cingular markets. Further, the drive data can be collected without LMUs having been

deployed and made operational, unlike other proposed location technology solutions[2].

Cingular is working with several providers to determine the extent of the drive testing required. This technology uses drive data to calibrate a predictive model database. Because it does not require additional hardware at each base station, and antennas at all or most towers, deployment of an E911 solution utilizing a switch-based technology like MNLS can be much faster to deploy than the other location technologies.

Switch-based technologies also require software to be added to a carrier's switches in order to interface into the equipment of vendor(s) providing the algorithm solution. This interface provides a mechanism whereby Mobile Assisted Hand-Off (MAHO) measurements (which are already collected by the switch in accordance with IS-136 standards), are passed on to the Positioning Determining Element (PDE) incorporating the location algorithms. Ericsson stated that this interface will be ready in its switches in 4Q01. Lucent stated that its interface will be ready August, 2002. Nortel has not committed to a firm date, but is expected to do so upon AWS and/or Cingular receiving approval of their waiver requests. Cingular continues to give high priority to its demands on Lucent and Nortel to accelerate the development of their interfaces. Rapid approval of Cingular's waiver request will facilitate that acceleration and improve Cingular's deployment schedule for its switch-based solution for phase II.

[2] The RF mapping solutions require that the LMUs be installed and functional during drive testing.

II. Deployment Estimates for a Typical Medium-size Market

A. Assumptions

The following assumptions were used in the determination of how long it would take to complete E911 Phase II hardware installations in a typical medium-size market of 300 cell sites. It is important to note that the timelines contained in the assumptions table are based upon what might be achievable in a single market during an aggressive nationwide deployment of an E911 Phase II solution.

Assumptions Regarding a Typical Market During a Nationwide E911 Phase II Deployment

Assumptions	
a. Number of Cell Sites	300
b. Number Of Sites Surveyed per Day	6
c. Number of Weeks to Complete Site Survey	10
d. Percent Requiring AOA Functionality	70%
e. Number of Cells Requiring AOA	210
f. Percent of Cells Requiring Zone and Restructure	25%
g. Number of AOA Cells not Requiring Zoning and/or Restructuring (Simple Installations)	158
h. Number of Cells Requiring Zoning and Restructuring (Complex Installations)	53
i. Number of Cells Installed per Day	1.5
j. Number of Install Teams per Market	4
k. Equipment Order Period per 100 Cells (Weeks)	6
l. Hardware Delivery Schedule (Weeks)	18
m. Expected Zoning Period (Weeks)	52

Table 1 TDOA/AOA Assumptions

B. ***Deployment Estimates for a Single Market***

Installation	
Simple Installation	
n. Number of Simple Installs (line a-e+g)	248
First Installation Begins	
o. Time to Complete First 100 Simple Installs (Weeks) (100/(i*j)/5)	3.33
Phase II Installs Begin	
p. Delivery of Phase II Hardware ((n/100)*k+c)	25
q. Time to Complete remaining Phase II Simple Installation (weeks) ((n-100)/(i*j)/5	5
r. Calibration Period for Phase II (Weeks)	4
s. Simple Installs Complete(weeks) p+q+r	34
Complex Installations	
t. Restructuring cells per crew per week	1
u. Number of Restructure Crews per Market	3
v. Restructure Completed (Weeks) h/(t*u)	18
w. Complex Cell Hardware Installation Begin (week) (3*k+c+v+m)	97.5
x. Hardware Installation Complete (weeks) (h/(i*j)/5	1.75
y. Calibration Period for Complex Cells	3
z. Complex Installation Completed (weeks) (w+x+y)	102.25
Market Completed (Yrs) not including zoning ((z-m)/52)	1.0
Market Completed (Yrs) including zoning (z/52)	2.0

Table 2 (Deployment Estimations)

It is true that if this analysis were examining what could be achieved in a single market in an isolated deployment, the timeline to completion could be expedited to a more rapid roll-out than shown above. In fact, a single, isolated market could arguably be deployed as quickly as nine months not including uncontrollable zoning delays. (The above schedule reflects a more typical roll-out interval of 12 months, not including zoning delays). In a nationwide deployment, more standard roll-out time frames must be used, and even then not every market can be simultaneously deployed by every carrier. Reasons for this include:

- The manufacturing capacity of full network solution vendors is finite. Equipment is unlikely to be available to all carriers in all markets to support multiple expedited roll-outs.

- A significant percentage of sites will require new antennas, and therefore zoning approval. If multiple carriers are simultaneously deploying throughout their networks, the zoning approval process will not support the large number of requests for expedited consideration. With as many sites as will require new antennas and/or restructuring nationwide during a short time frame, zoning delays as long as 18 months will be common.

- The large number of site surveys, tower studies, and cell site equipment installations required during the deployment period would preclude achievement of expedited schedules in all but a limited number of markets.

Note that activity referenced in the second and third bullets above will occur in addition to normal growth and system expansion. There is little surplus

capacity in manufacturers, contractors, and municipal zoning boards available to absorb the additional demand that would be placed upon their resources.

III. Conclusion

When considering network-based solutions, the deployment issues are considerable for the TDOA/AOA and the RF-mapping proposed network solutions.

It is Cingular's opinion that the accuracy of these two technologies would be greatly reduced if deployed in a less than ideal environment.

The MNLS solution offers a potentially faster roll-out[3], with some cost to accuracy. MNLS is not dependent on RF network constraints; it is only dependent on the quality of the database used to locate the mobile stations (which Cingular controls). Most importantly, as the switch based location technology and integral algorithms develop, accuracy improvements can be realized quickly due to the centralized and software-oriented nature of this technology.

Cingular has spent an enormous amount of time and energy evaluating these network-base location technologies, and has found most of them to be problematic when considering deployment logistics. They all have major issues that may significantly delay any meaningful deployment. Cingular is committed to resolving as many of these issues as possible, but understands that many are beyond its control. It is Cingular's desire to roll-out a Phase II

[3] This faster roll-out takes into consideration the initial delay that will be experienced as switch vendors add the interface required to pass MAHO data to PDE. Once this interface is complete, roll-out will be accelerated on implementations thereafter.

solution as quickly as possible in its TDMA markets. It appears that a switch-based solution offers the best hope of achieving that goal.

ATTACHMENT F

Deployment Cost Estimation for Network-based E911 Phase II Location Technology Solutions

Introduction

Cost inputs for this study were generated from RFQ responses provided to Bellsouth Cellular Corp. by several different network-based E911 location technology vendors using the Time Difference of Arrival (TDOA) / Angle of Arrival (AOA) and RF Mapping technologies. These estimations include certain E911 related costs which are common to all location technology solutions, including costs for Mobile Positioning Center (MPC) services, and support for J-STD-036 capability in the Mobile Switching Center (MSC). These common costs account for approximately $50 million by the end of 2005. The following assumptions describe how the pricing schedule for Cingular Wireless' TDMA markets was developed.

Location Technology Assumptions

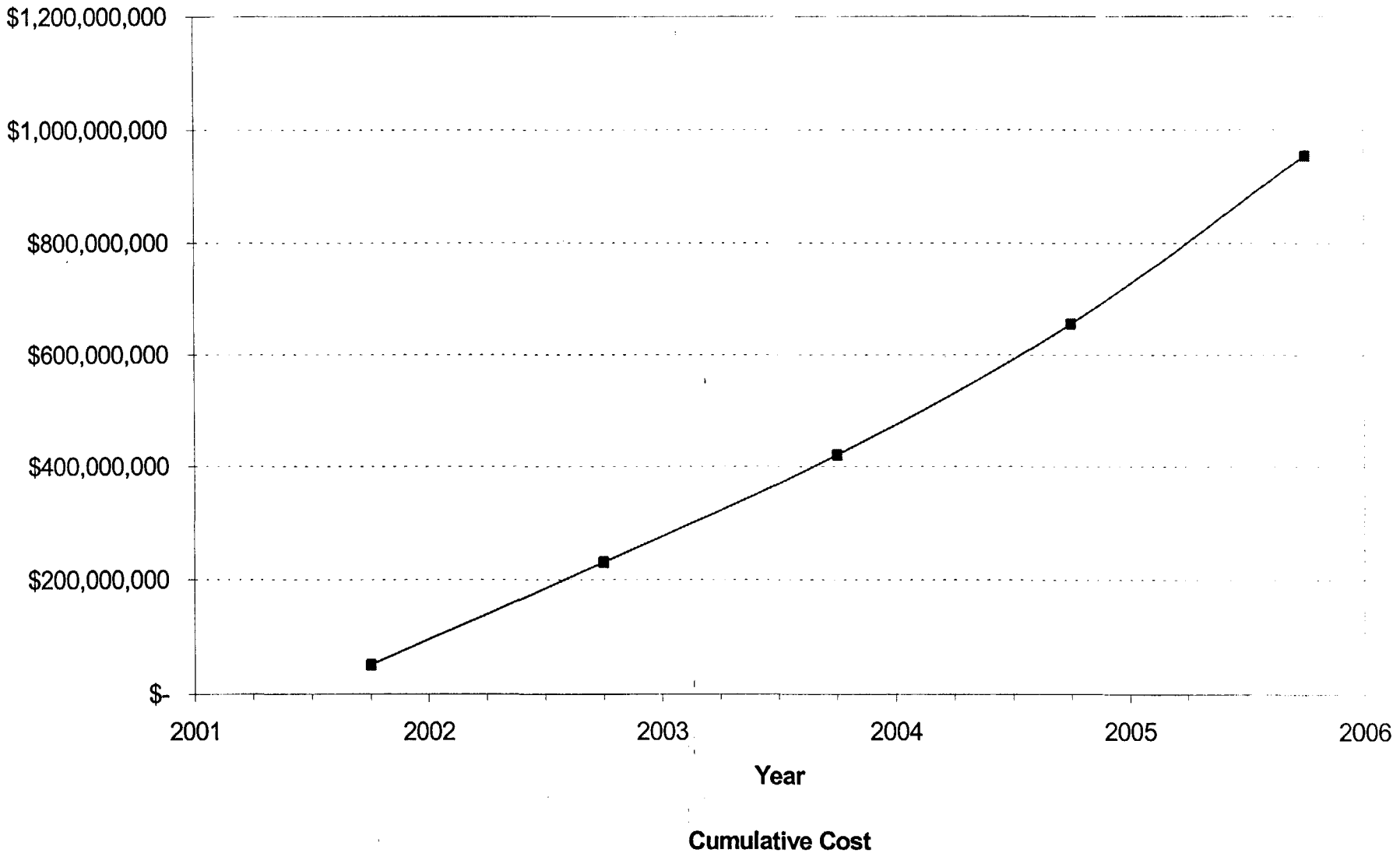
- The pricing schedule below assumes that all hardware from the vendor is available at the time a purchase order is issued and that hardware can be installed within the FCC mandated period for any PSAP request. (Note: From a real-world logistics standpoint, this deployment speed appears unachievable.)
- Vendor pricing discounts based on quantity were accounted for in each estimation. In order to achieve as rapid a deployment as possible, multiple vendors will be required. Therefore, the volume discounts assumed herein may not be achievable.
- The ratio of Location Monitoring Units (LMUs) to Base Stations is 1:1. This assumption also will tend to make the costs contained herein understated. It has not been demonstrated that this LMU density can achieve the FCC's accuracy mandate. With some technologies, in some locations the number of LMUs required may significantly exceed the number of cellsites. (Note: LMUs not co-located with existing cellsites will require additional costs for real estate acquisition, zoning permits, power, shelters, etc.

These additional costs plus the cost of those LMUs have not been accounted for in these estimates.)

- Based on PSAP requests already received, the initial percentage of Cingular base stations that need to be fulfilled by 4Q 2001 is approximately 19%.
- Based on PSAP requests assumed to be received, the cumulative percentage of Cingular base stations that need to be fulfilled by 4Q 2002 is approximately 37%.
- Based on PSAP requests assumed to be received, the cumulative percentage of Cingular base stations that need to be fulfilled by 4Q 2003 is approximately 55%.
- Based on PSAP requests assumed to be received, the cumulative percentage of Cingular base stations that need to be fulfilled by 4Q 2004 is approximately 73%.
- Based on PSAP requests assumed to be received, the cumulative percentage of Cingular base stations that need to be fulfilled by 4Q 2005 is approximately 91%.
- Installation, testing, site license, site engineering, and facility costs are included in the pricing assumptions.
- Annual maintenance fees for all deployed LMUs are included in the costs.
- Any tower reconstruction or reinforcement required to support the AOA antenna component is not included in these assumptions.

Year	Annual Cost	Cumulative Cost
2001	$ 52,018,060	$ 52,018,060
2002	$ 178,879,201	$ 230,897,260
2003	$ 190,152,481	$ 421,049,742
2004	$ 234,233,536	$ 655,283,278
2005	$ 299,089,363	$ 954,372,641

E911 Phase II Implementation Costs for Network-based Solutions



Cingular Wireless
July 5, 2001

ATTACHMENT G

DECLARATION OF WILLIAM E. CLIFT

I, William E. Clift, hereby declare and state as follows:

I hold an M.B.A. from the University of Memphis (1981) and a B.S. degree in electrical engineering from Tennessee Technological University (1975). I have been employed as Chief Technical Officer of Cingular Wireless LLC ("Cingular") since its inception. Prior to joining Cingular, I served as president of the American Cellular Communications Corporation and BellSouth Mobility DCS (2000). I make this Declaration in support of Cingular's Petition for Limited Waiver of Sections 20.18(e) – (h) ("Petition"). All facts stated herein are based upon my personal knowledge.

I am personally familiar with Cingular's efforts to implement Phase II location information. Although GPS-enabled handsets appear to be the most promising location solution, these handsets will not be available in sufficient quantities to meet the FCC's E911 Phase II implementation deadline. Accordingly, Cingular plans to pursue an E-OTD solution for its GSM networks and a switch-based solution similar to MNLS for its TDMA networks.

Switch-based solutions rely on a functionality that is intrinsic to TDMA and GSM networks — the signal strengths from the serving cell and neighboring cells. Ericsson has reported trial results with a switch-based solution that can produce approximately 250 meter accuracy for 67 percent of calls. Based on these encouraging accuracy results, Cingular is working diligently with vendors to test and deploy this technology as quickly as possible.

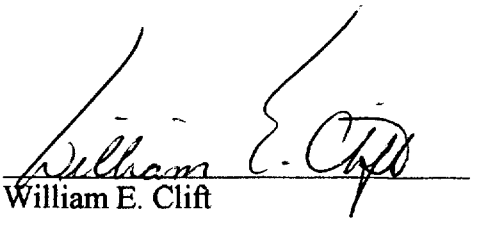
Switch-based technology has many advantages. For example, switch-based technology can be deployed much faster than other network-based location technologies because it does not require the installation of base station hardware. Indeed, AT&T has indicated that MNLS can be deployed throughout its TDMA network by the end of the first quarter of 2002. Cingular will be able to commence deployment of switch-based location technology as soon as its switch vendors supply software upgrades. Cingular expects the necessary software upgrades for its Ericsson switches by fourth quarter 2001 and for all of its other TDMA switches by late 2002, thereby enabling Cingular to complete its Phase II deployment by spring 2003.

Conversely, a full network solution would be deployed in only a handful of Cingular markets in the time it would take to install a switch-based solution in all of Cingular's TDMA markets. The full network solutions tested by Cingular require complex, time consuming installations. The vast majority of full network solutions require the installation of special antennas on at least 40 percent of a carrier's cell sites. Moreover, as more fully discussed in the Deployment Cost Estimation ("Cingular Estimate"), network-based solutions require extensive zoning approval that substantially delays deployment of those solutions.

Based on information received from vendors, including information gathered as part of a Request for Quote issued last year, network-based solutions represent the most expensive Phase II solutions even though they still do not meet the FCC's accuracy requirements. I have reviewed the Cingular Estimate attached to the Petition and certify that it is accurate to the best of my knowledge and belief. It is important to note, however, that the costs referenced in the Cingular Estimate assume that the ratio of Location Monitoring Units ("LMUs") to base stations is 1:1. Because this ratio deteriorates in rural areas, as vendors such as TruePosition have acknowledged, the actual deployment cost could exceed one billion dollars.

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed July 5, 2001



William E. Clift

ATTACHMENT H

ATTACHMENT H

DECLARATION OF DR. ANDREW W. CLEGG

I, Dr. Andrew W. Clegg, hereby declare and state as follows:

I have a PhD in Radio Astronomy and Electrical Engineering from Cornell University (1991) and have been employed as a Principal Member of the Technical Staff for Cingular Wireless LLC ("Cingular") since its inception. Prior to joining Cingular, I was a Senior Manager for BellSouth Cellular Corporation (1999 – 2000), and a Senior Engineer for BellSouth Mobility DCS (1997-1999). Previously, I was a Senior Engineer for Comsearch (1996-97), an Adjunct Program Manager for the National Science Foundation Electromagnetic Compatibility Unit (1994-95), and a Staff Scientist for the Naval Research Laboratory, Remote Sensing Division (1991-95). I make this Declaration in support of Cingular's Petition for Limited Waiver of Sections 20.18(e)–(h) (the "Petition"). All facts stated herein are based upon my personal knowledge.

I am personally familiar with Cingular's efforts to implement Phase II location information. Cingular has contacted approximately 19 vendors and I have personally been involved in discussions with all of these vendors. Cingular has been actively seeking Phase II solutions since its inception. Cingular's parent companies SBC and BellSouth were also actively seeking Phase II solutions prior to the creation of Cingular. I was personally involved in BellSouth's efforts and have reviewed reports regarding SBC's efforts. To the best of my knowledge, Cingular has conducted more field trials of a greater variety of location technologies than any other carrier, public safety agency, or location technology vendor. Cingular has tested virtually all location technologies across virtually all environments. Specifically, Cingular has tested Time Difference of Arrival ("TDOA"), Angle of Arrival with TDOA ("AOA/TDOA"), RF Mapping, Enhanced Observed Time Difference of Arrival ("E-OTD"), and Assisted Global Positioning System ("A-GPS") technologies in urban, suburban, and rural environments, as well as in outdoor, indoor, in-vehicle, and in-motion settings. I prepared a table that has been incorporated into Cingular's waiver request, which summarizes both the technologies tested and the environments in which the tests were conducted.

In addition, as part of my duties I have prepared a report entitled "E-911 Phase II Trial Results" that accurately summarizes the trial results of several E-911 Phase II location technologies, including AOA/TDOA, TDOA, A-GPS, E-OTD and RF mapping systems. The earliest trials were conducted in May 1999 and others continue today. A copy of the report has been appended to the Petition, as Attachment D.

As Cingular has clearly expressed on many occasions before the FCC and in other public fora, none of the technologies that it has tested can meet the present accuracy requirements contained in Section 20.18. In each and every case, the potential solutions considered by Cingular, SBC, and BellSouth did not satisfy the Commission's accuracy requirements. Out of all technologies, the best 67% accuracy performance was 76 m (90% confidence), and was a handset-based solution. The other technologies had 67%

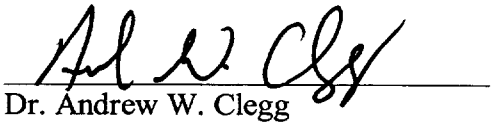
accuracy figures ranging from 127 to 256 m. None of the technologies had a 95% accuracy (90% confidence) better than 1200 m. The 95% accuracy of most technologies could not be derived at all because of insufficient yield.

The conclusion drawn from Cingular's location technology tests is:

> *When considering the location accuracy performance of all tested technologies in all tested environments, no technology met the FCC accuracy mandate in any of those environments.*

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed July 5, 2001



Dr. Andrew W. Clegg

ATTACHMENT I

MOTOROLA

June 5, 2001

Mr. Jim Sheehan
Director of Equipment/Logistics
Triton PCS
1100 Cassatt Road
Berwyn, PA 19312

Dear Jim:

Going forward, Motorola has limited the scope of its research and development for TDMA handsets, and feels that the potential for TDMA handset-based location technology is not promising.

Motorola does not build TDMA network infrastructure and therefore is not in a position to comment on the merits of any TDMA network based location technology. However, Motorola has been a leading supplier of TDMA handsets and has reduced development of TDMA products for a number of reasons. TDMA is, essentially, a second generation technology that does not have a simple transition path to more advanced systems with richer features. In contrast, both GSM and CDMA have well established and recognized migration paths to 2.5 generation and 3rd generation advanced systems. Because of the desires of wireless providers to ensure a next generation transition path, Motorola is realigning resources and portfolios towards GSM and CDMA.

In light of these events, Motorola will have very little new product development for TDMA handsets and, based on an apparent lack of future demand, has not planned for the development of handset-based location technology for TDMA handsets. Therefore, Motorola will not have a handset-based location technology available for the TDMA air interface in time for the October 1, 2001 deadline promulgated by the Commission.

Please let me know if you have any questions.

Regards,

Lenny Frucht

Lenny Frucht
Sr. Regional Business Manager

Personal Communications Sector
1000 Corporate Drive, Suite 600, Fort Lauderdale, Florida – (954) 267-5007, Fax (954) 267-5233

Nokia Mobile Phones

June 8, 2001

Mr. Jim Sheehan
Director, Equipment and Logistics
TritonPCS
1100 Cassatt Road
Berwyn, PA 19312

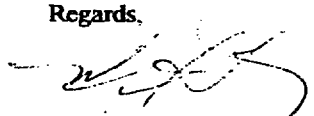
Dear Jim.

Per our conversation of June 7, 2001 and referencing FCC Docket number 94-102, this letter is intended to clarify for TritonPCS Nokia's intentions with regard to GPS as a location technology solution for TDMA.

Nokia is a major handset vendor for TritonPCS. Nokia has evaluated several possible location technology options for TDMA. Nokia's position with regards to GPS as a location based technology for TDMA is this: due to certain marketing, technical and cost issues, we will not be developing GPS-equipped TDMA handsets. This decision was made because there was insufficient demand for such handsets and Nokia did not believe that they could have been competitive in the market for all product categories due to increased costs and form factor changes.

Thank you Jim. If you have any further questions or concerns, please do not hesitate to contact me.

Regards,



Michael Flemming, Carrier Strategy Manager

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Panasonic

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770.338.6000
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May 30, 2001

Mr. Jim Sheehan
Director Equipment and Logistics
Triton PCS
1100 Cassatt Road
Berwin, PA 19312

Dear Mr. Sheehan:

This letter is in response to your inquiry regarding Panasonic's plans to support E-911 functionality. Panasonic TDMA handsets currently in production for the U.S. market do not include specific handset-based technology support for automatic location identification. Several operators have disclosed in public filings their intent to satisfy FCC requirements via network overlay systems which will work with all TDMA handsets, including current and future Panasonic TDMA handsets. Given this along with current technological and market limitations associated with proposed handset-based solutions and anticipated decline in TDMA handset demand, Panasonic intends to focus investigation of alternative handset-based solutions towards future products based on GSM and next generation wireless access technologies.

As always we endeavor to meet and exceed customer and market expectations and hope we can satisfy your future product needs.

Please do not hesitate to contact me should you require further information.

Sincerely,

Robert J. Miklosko

Director, Product Planning

NORTEL NETWORKS

How the world shares ideas.

July 3, 2001

Evans Roberts
Cingular Wireless
5565 Glenridge Connector
Atlanta, GA 30342

Re: TDMA based E911 Phase 2 core network technology and CALEA punch list functionality

Dear Evans:

In this letter, Nortel Networks details its plans for making the E911 Phase 2 core wireless network technology (E911 technology) and the CALEA punch list functionality available.

E911

Nortel Networks is committed to its part in enabling an end-to-end, E911 Phase 2 location information solution. As explained in this letter, Nortel Networks will supply the E911 technology enabling wireless carriers using its DMS-MTX switch, when interworking with other parties and technologies, to convey location information to the Public Safety Answering Point (PSAP).[1] Despite diligent development efforts, the E911 technology will be made generally available after October 1, 2001 as detailed in this letter. [2]

Required Components and Availability Details

The E911 technology for use with the DMS-MTX platform requires a combination of hardware and software which Nortel Networks has designed to operate

[1] The Nortel Networks DMS-MTX switch is generally used by carriers to support TDMA and CDMA wireless protocols. Note that the E911 technology does not support Satellite Assisted Mobile Positioning Systems (SAMPS) based TDMA handset solutions. This handset solution is not supported because Nortel Networks understands that no handset vendor plans market introduction of a SAMPS enabled handset.

[2] By generally available, Nortel Networks means that the product has been adequately tested, any corrections made and offered commercially to all carriers desiring to purchase or license the product or software.

in accordance with the E911 applicable J-STD-036 standard. The functional elements constituting the Nortel Networks E911 technology are switch software, RF Access system software, Mobile Positioning Center (MPC) and Positioning Determining Entity (PDE).

The E911 technology elements will be made generally available by Nortel Networks according to the following schedule.

Component	Role	GA Date
MTX10	Switch software	Q4 2001
NBSS10.1	RF access subsystem	Q4 2001

Nortel Networks will make its combined MPC/PDE generally available in Q2 2002. Because the functions performed by the MPC/PDE are standards based, carriers using the Nortel Networks MTX platform may procure the necessary technology from other vendors and need not wait until Nortel Networks makes its MPC/PDE available to deploy E911. Finally, IOS version 4.0 must be deployed in carriers' networks with equipment from multiple vendors. The IOS software will become generally available in Q1 2002.

This schedule represents Nortel Networks' current plan. This plan could be altered by a number of factors, including unavailability of handsets for testing and resolution of technical issues identified through interoperability testing of the E911 technology with other vendors' technology contributions.

Even after general availability, carriers will need time to deploy the solution across the portions of their networks covered by validated PSAP requests.

MNLS

Nortel Networks is currently evaluating development of Mobile Assisted Network Location System software ("MNLS") for the DMS-MTX switch. Nortel Networks understands that Cingular desires to use MNLS for Cingular's TDMA network through a waiver similar to the one sought by AT&T Wireless in its April 4, 2001 waiver request to the FCC E911 requirements.

Nortel Networks has not yet committed to the development of the MNLS feature, however, a final decision regarding MNLS development is expected within a month. The actual availability date will be determined in conjunction with the development decision and should development commence, availability would occur in the mid 2002 timeframe.

As Cingular is aware, the FCC has not yet approved the AT&T Wireless request. In addition, Nortel Networks feels that MNLS will not meet the FCC accuracy requirements for a network based location solution.